

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

TRUEPOSITION, INC.)
1000 Chesterbrook Blvd., Suite 200)
Berwyn, PA 19312)
PLAINTIFF,)

vs.) Case No. _____

LM ERICSSON TELEPHONE COMPANY)
(TELEFONAKTIEBOLAGET LM ERICSSON))
SE-164 83)
Stockholm, Sweden,)

QUALCOMM INC.) JURY TRIAL REQUESTED
5775 Morehouse Drive)
San Diego, CA 92121,)

ALCATEL-LUCENT, S.A.)
3 av. Octave Gréard)
75007 Paris, France,)

THIRD GENERATION PARTNERSHIP)
PROJECT a/k/a 3GPP)
c/o ETSI)
650 Route des Lucioles)
06921 Sophia-Antipolis Cedex)
FRANCE,)

and)

EUROPEAN TELECOMMUNICATIONS)
STANDARDS INSTITUTE)
650 Route des Lucioles)
06921 Sophia Antipolis Cedex)
FRANCE,)

DEFENDANTS.)

COMPLAINT FOR VIOLATIONS OF THE U.S. ANTITRUST LAWS

Plaintiff TruePosition, Inc. (“TruePosition”), by and through undersigned counsel, below states its Complaint against Defendants Telefonaktiebolaget LM Ericsson (“Ericsson”), Qualcomm, Inc. (“Qualcomm”), Alcatel-Lucent, S.A. (“Alcatel-Lucent”), Third Generation Partnership Project (“3GPP”), and the European Telecommunications Standards Institute (“ETSI”).

For the convenience of the Court, appended to this Complaint is a Glossary of the acronyms used.

NATURE OF THIS ACTION

1. TruePosition brings this action to end defendants’ conspiracies, in violation of the United States antitrust laws, to eliminate competition in the markets for products that provide public safety and law enforcement and homeland security agencies with highly accurate locations of mobile cellular devices, and to foreclose TruePosition—an innovative competitor with a superior positioning technology—from continuing its successful and growing business. TruePosition seeks damages and injunctive relief to stop the anticompetitive conduct by defendants Ericsson, Qualcomm, and Alcatel-Lucent operating under, and ultimately co-opting and undermining, the authority of defendant 3GPP, a standard-setting organization (“SSO”), and its organizational SSO partner defendant ETSI.

2. TruePosition is a leading innovator in developing and marketing high accuracy location products that operate over cellular telecommunications networks. More than 55 million cellular callers in the United States each year are located by TruePosition products, assisting police, fire, and ambulance services in saving lives and enabling law

enforcement to combat criminal activity and terrorist threats. Its positioning technology, known as “UTDOA,” is included in 3GPP standards for earlier-generation mobile communications technology, and has been successfully deployed on more than 90,000 cell tower sites in the United States to meet Federal Communications Commission (“FCC”) regulatory requirements.

3. 3GPP brings together providers of mobile phone network equipment and related technologies to set global standards for advanced mobile telecommunications systems. 3GPP currently is engaged in setting standards for the next generation of mobile communications, known as “LTE” (“Long Term Evolution”), which is the fourth generation (“4G”) of mobile telephone technology. Inclusion in the 3GPP standard is vital to commercial success. Exclusion from the standard guarantees commercial failure and, in most instances, absolute foreclosure from the market. In the words of one court:

3GPP sets standards throughout the entire wireless communications industry to insure compatibility of equipment. If telecommunications equipment is not in compliance with 3GPP standards it will not be compatible with the telecommunications networks and other equipment. Accordingly, it will essentially be useless.

Golden Bridge Tech. v. Nokia, Inc., 416 F. Supp. 2d 525, 532 (E.D. Tex. 2006).

Thus, 3GPP standardization for the products at issue in this case is “not just a ‘stamp of approval’.” *Id.* It is an absolute prerequisite for open competition.

4. TruePosition’s UTDOA technology has the capability to provide highly accurate positioning for LTE “4G” networks. However, defendants Ericsson, Qualcomm, and Alcatel-Lucent, in concert with each other, manipulated and violated the due process rules of 3GPP and ETSI with the express purpose to delay and preclude standardization of UTDOA for LTE. Relentlessly over a period of three years, acting under the authority

of the conspiring SSOs 3GPP and ETSI, Ericsson, Qualcomm, Alcatel-Lucent, and their representatives who have served as Chairmen of key 3GPP committees have abused their authority and power within 3GPP. Ericsson, Qualcomm, and Alcatel-Lucent have engaged in this conduct in concert and conspiracy and with shared goals: to seize unfair competitive advantages for the positioning technologies in which they hold economic (manufacturing and intellectual property) interests; to exclude competition from state-of-the-art products offered by TruePosition and others in the relevant positioning markets; and, in the case of Ericsson and Alcatel-Lucent, to further entrench their dominant positions in the market for radio access network (“RAN”) equipment by preventing new entry by competing vendors. As soon as UTDOA is included in a released positioning standard for LTE, TruePosition can complete development and begin to market UTDOA technology for 4G networks. The defendants are blocking this from happening.

5. Ericsson, Qualcomm, and Alcatel-Lucent, pursuant to their combination and conspiracy, hijacked 3GPP processes and violated 3GPP rules by:

- Precluding timely standardization of TruePosition’s UTDOA technology;
- Accelerating standardization of their own positioning technology—which has never been successfully deployed anywhere in the world, and which in a prior generation failed to meet FCC requirements and so was replaced on thousands of cell towers in the United States by TruePosition’s technology;
- Ambushing 3GPP members with dilatory submissions, in violation of 3GPP rules, that were designed to derail standardization of UTDOA;
- Imposing unreasonable requirements on UTDOA far in excess of those required of the technologies that they promoted;

- Steering control over TruePosition's UTDOA technology to 3GPP Working Groups that defendants chaired for the purpose of killing or impeding UTDOA standardization; and,
- Preventing 3GPP from standardizing any implementation of UTDOA in competitive products manufactured by TruePosition and other vendors of "standalone" products (*i.e.*, in which positioning technology is housed in a separate unit, and is not directly embedded in the RAN equipment) to eliminate defendants' only serious competing provider of positioning, and ensure that positioning technologies had to be embedded in the RAN equipment that Ericsson and Alcatel-Lucent manufacture, and the chips that Qualcomm sells for handsets.

6. TruePosition therefore brings this action to enjoin defendants' concerted efforts to foreclose competition in the relevant positioning technology and RAN equipment markets, and their further abuses of the 3GPP standard-setting processes; to compel 3GPP and ETSI to remedy the anticompetitive effects of past misconduct on the 3GPP standards, in which they have been complicit; to ensure the future fair operation of 3GPP standard-setting for positioning technologies; to be free to compete in providing positioning technology for LTE and prior generations of technologies along with LTE; and to obtain damages for the harm defendants caused and continue to cause TruePosition by excluding it from LTE technology sales.

THE PARTIES

7. Plaintiff TruePosition is a Delaware corporation having its principal place of business in Berwyn, Pennsylvania. TruePosition competes in the relevant positioning

markets through its research, development, manufacture, sale, and maintenance of equipment and software for locating the position of mobile telephone handsets. TruePosition has received 95 patents relating to positioning technology, and has approximately 160 employees and contractors dedicated to research and development. In 2010, TruePosition's sales revenues were approximately \$146 million. In 2010, TruePosition spent approximately \$25 million on research and development relating to positioning technology. TruePosition participates actively in 3GPP and ETSI.

8. Defendant Ericsson is a multinational corporation headquartered in Stockholm, Sweden that actively transacts business in the United States and in this District, directly and through one or more wholly-owned subsidiaries located in the United States acting as its agent(s). One of these, Ericsson, Inc., has a registered agent for the service of process in Pennsylvania. Ericsson's American Depository Shares are listed and traded on The NASDAQ Stock Market LLC and it files annually a report on Form 20-F with the U.S. Securities and Exchange Commission ("SEC"). Ericsson is a leader in the development, manufacture, and sale of equipment (and related software) for mobile telephone communications, including the sales of network equipment to U.S. telecommunications carriers and of handsets to such carriers and United States consumers. Ericsson holds more than 27,000 patents, and within the past month has, in a joint purchase with other technology firms, acquired rights to more than 6,000 additional patents from its former competitor Nortel Networks, for a collective price exceeding \$4.5 billion. Upon information and belief, these patents include rights relating to LTE and wireless technology. It has more than 90,000 employees worldwide, and more than 13,000 of these are employees in North America. In 2010, Ericsson's sales revenues exceeded \$28

billion. Sales of telecommunications network equipment comprise a majority of Ericsson's net sales both in the United States and globally.

9. Defendant Qualcomm is a multinational corporation headquartered in San Diego, California that actively transacts business in this District. Qualcomm has a registered agent for the service of process in Pennsylvania. Qualcomm is a leader in the development, manufacture, and sale of semiconductor chips and software for use in mobile telephone handsets. Qualcomm has more than 88,000 patents. Qualcomm has more than 17,500 employees. In 2010, Qualcomm's sales revenues exceeded \$10.9 billion.

10. Defendant Alcatel-Lucent is a multinational corporation headquartered in France, that actively transacts business in the United States and in this District, directly and through one or more subsidiaries located in the United States and acting as its agent(s). One of these is Alcatel-Lucent U.S.A., Inc., a wholly-owned subsidiary of Alcatel-Lucent which acts as its agent. The U.S. subsidiary has a registered agent for the service of process in Pennsylvania. Alcatel-Lucent's American Depositary Shares are listed and traded on the New York Stock Exchange and it files annually a report on Form 20-F with the SEC. Alcatel-Lucent is a leader in the development, manufacture, and sale of equipment and software for mobile telephone communications, including the sales of network equipment to U.S. telecommunications carriers. Alcatel-Lucent has more than 27,900 patents. Alcatel-Lucent has more than 79,000 employees, more than 18,000 of whom work in North America. In 2010, Alcatel-Lucent's sales revenues exceeded \$21.2 billion.

11. Defendant 3GPP is a not-for-profit standard-setting organization located in France. The membership of 3GPP comprises hundreds of international companies through six associations of telecommunications companies (each association referred to as an “organizational partner”). Formed in 1998, the business of 3GPP is fairly and impartially to create global standards for mobile telecommunications technologies that are designed to be implemented in equipment sold internationally, including in the United States. Standard setting meetings of the 3GPP are held in several countries of the world, frequently in the United States. 3GPP is responsible for managing the conduct of its standard-setting activities and to assure that its mandate is properly performed by its participating members. Defendants Ericsson, Qualcomm, and Alcatel-Lucent are members of and participate actively in 3GPP, and exert strong influence over 3GPP through their control of the Chair positions of key committee groups and through their general industry dominance.

12. Defendant ETSI is a not-for-profit standard-setting organization located in France. The membership of ETSI comprises 700 member companies from 62 countries, including countries outside of Europe. The business of ETSI is fairly and impartially to create standards within Europe and globally for information and telecommunications technologies, including for mobile telecommunications. ETSI is a European Standards Organization. ETSI also is one of the organizational partners of 3GPP, and is the primary provider of office space, staffing, and administrative support for 3GPP. Defendants Ericsson, Qualcomm, and Alcatel-Lucent, are members of, participate actively in, and exert strong influence over ETSI. An Ericsson employee serves as Vice Chairman of the Board of ETSI, and an Alcatel-Lucent employee also serves on the Board of ETSI.

JURISDICTION AND VENUE

13. This Court has jurisdiction over this matter pursuant to Section 4 of the Sherman Act, 15 U.S.C. § 4, and 28 U.S.C. §§ 1331 and 1337.

14. Venue is proper in this District under Section 12 of the Clayton Act, 15 U.S.C. § 22, and under 28 U.S.C. § 1391. Defendants Ericsson, Qualcomm, and Alcatel-Lucent regularly solicit and transact business within this District, and sell and service telecommunications equipment in this District and in U.S. interstate and foreign commerce. Individually, each company derives billions of dollars of revenue annually from sales in the United States and, upon information and belief, obtains millions of dollars in sales of equipment and services within this District. Defendants 3GPP and ETSI solicit membership from companies within this District, including TruePosition, and set telecommunications standards that are intended to affect substantially commerce within this District, and U.S. interstate and foreign commerce.

FACTUAL BACKGROUND

I. Positioning Technology for Locating Mobile Phone Devices

15. Technologies that determine the position of mobile telecommunications devices have evolved to meet a variety of business, public safety, and security needs. Each technology has particular attributes relating to accuracy, speed, reliability, and suitability for particular types of physical terrain and population density. These factors affect the selection of location technologies capable of meeting a particular application.

16. A primary use for high accuracy positioning technology in the United States is to locate mobile phones that call emergency services such as E-911. According to the FCC, nearly 70 percent of all E-911 calls originate from mobile phones. Beginning in 1996,

and on a continuing basis, the FCC has proposed and promulgated regulations requiring mobile carriers (such as AT&T Wireless, Verizon Wireless, T-Mobile, and Sprint) to provide for increasingly accurate location of mobile handsets that call E-911 services. Pursuant to FCC regulations (47 C.F.R. § 20.18), mobile carriers must transmit all E-911 calls to a Public Safety Answering Point (“PSAP”), along with the telephone number of the caller and the caller’s location by latitude and longitude. Under these regulations, beginning October 2001, wireless carriers have been required to provide the location of the handset to specified levels of precision and reliability. The current regulation provides that the location provided must be accurate, measured at the county level, for cellular network-based positioning technologies (such as the technology offered by TruePosition) within 100 meters 67% of the time, and within 300 meters 90% of the time; and, for handset-based technologies (such as manufactured by Apple, Ericsson, Motorola, Samsung, Research in Motion, HTC, and others), within 50 meters 67% of the time, and within 150 meters 90% of the time. 47 C.F.R. § 20.18(h). In an action announced July 12, 2011, the FCC will require that within eight years all carriers must provide positioning capability that meets the stricter level of accuracy regardless of which positioning technologies they deploy, and will conduct a proceeding to determine whether to set specific performance levels for indoor location of mobile devices. Carriers that do not satisfy FCC requirements are subject to enforcement proceedings and fines.

17. Homeland security and law enforcement needs define a second use for sophisticated high accuracy positioning technology. Using mobile phone positioning technology, law enforcement authorities can locate individuals suspected of engaging in criminal activities such as drug trafficking, kidnapping, border violations, and terrorism.

18. Other uses of positioning serve less critical commercial purposes such as navigation and location-based advertising. For example, navigation can be accommodated by Global Positioning System (“GPS”) technologies where satellites obtain a clear line of sight to devices within moving vehicles. By contrast, positioning technologies for E-911 public safety and security must provide highly accurate location information in challenging environments, such as indoor locations and dense urban landscapes where a GPS signal cannot typically reach.

19. A number of technologies are currently in use or proposed for use for positioning for E-911 location:

- a. *Assisted GPS (A-GPS)*. This technology relies on the handsets to measure the differences in the time of arrival of signals from several satellites. The measurements of these very weak signals are made easier to acquire at the handset through the use of assistance data provided to the handset from the cellular network, but the cellular transmission does not play a direct role in computation of the position. A-GPS alone does not meet FCC positioning regulations because it cannot locate mobile devices indoors or in urban canyons. To meet FCC regulations, A-GPS commonly is used in conjunction with a cellular transmission-based positioning technology that provides indoor/urban location capabilities.
- b. *Advanced Forward Link Trilateration (AFLT)*. This technology requires handsets to measure the differences in the time of arrival of signals from nearby cell towers and then report the time and distance measurements to network equipment. The network equipment then triangulates the approximate location of the handset. AFLT is similar to E-OTD and OTDOA (described next).

c. *Enhanced-Observed Time Difference/Observed Time Difference of Arrival (E-OTD/OTDOA)*. This technology requires that the handset calculate its location based on the difference in timing between signals received over a cellular network from several cell towers (referred to as the “downlink” transmission). Major U.S. mobile carriers attempted in 1999-2001 to implement the E-OTD technology, but found that it failed to meet FCC regulatory requirements. The carriers instead implemented the UTDOA solution (described next) from manufacturers, including TruePosition and Andrew Corporation, in standalone units collocated with RAN equipment. Several companies, including defendants Ericsson, Qualcomm, and Alcatel-Lucent, subsequently have attempted to rectify the shortcomings of E-OTD in developing OTDOA. Upon information and belief, Ericsson and Qualcomm each hold patents that are essential to the implementation of OTDOA. Upon information and belief, OTDOA has not yet been successfully deployed commercially.

d. *Uplink Time Difference of Arrival (UTDOA)*. Using this method, equipment located at multiple cell towers (referred to as “location measurement units” or “LMUs”) collaboratively collect timing information necessary to calculate handset location by measuring the difference in the time they receive a signal sent over a cellular network in the ordinary course from the handset (referred to as the “uplink” transmission). No calculations are performed by the handset. UTDOA meets the FCC requirements and performs particularly well for locating positions indoors, under cover, and in urban areas.

II. The Advantages of UTDOA over Other Positioning Technologies

20. UTDOA has several distinct advantages over other location technologies. First, the technique is highly accurate. UTDOA timing measurements are very precise and provide a high level of accuracy that alone reliably meets the FCC regulatory requirements.

21. Second, UTDOA can successfully locate mobile handsets indoors and in challenging urban environments that satellite-based technologies cannot reach. To meet FCC regulatory requirements, carriers must be able to provide positioning in these challenging environments as well as in rural and open areas.

22. Third, all UTDOA positioning calculations are performed in equipment associated with the network (not in the handset, as is the case for satellite-based technologies, AFLT and OTDOA). This has several advantages. Because no calculations must be performed in the handset, UTDOA can locate any phone, including phones that do not incorporate positioning technology. UTDOA also can locate phones when they are turned on but are not in active use (referred to as “idle mode”). For these reasons, UTDOA is more useful than handset-based technologies for locating victims in large scale events such as natural disasters. In addition, positioning capabilities can be upgraded more easily and less expensively through changes to thousands of standalone LMUs, rather than through upgrading hardware or software in hundreds of millions of phones or forcing consumers to purchase new phones.

23. UTDOA also provides clear advantages for homeland security antiterrorism applications and gives law enforcement agencies a powerful tool for tracking and apprehending criminals. Handsets that calculate their location can detect when they are

being located. Positioning technology in a handset also can be disabled to thwart detection, or manipulated to provide false location information (known as “spoofing”). Because UTDOA does not rely on calculations from the handset, it can locate phones in idle mode without detection; it cannot be disabled by the handset user; and it is immune to spoofing by the handset.

III. The Standard-Setting Organizations for Mobile Phone Services

24. Defendants 3GPP and ETSI are SSOs that develop standards for wireless and mobile telecommunications services. Each of these organizations includes as members companies that compete against each other for the development, manufacture, and sale of products and services relating to mobile telecommunications.

25. The 3GPP organizational partner for the United States is the Alliance for Telecommunications Industry Solutions (“ATIS”). ATIS is a not-for-profit SSO located in Washington, D.C. ATIS comprises more than 250 member companies, including TruePosition. In previous years, TruePosition was an individual dues-paying member of 3GPP through its membership in ETSI. As of February 18, 2011, TruePosition changed its participation in 3GPP to now be through its membership in ATIS.

26. 3GPP standards are embodied in a series of technical documents known as “Specifications.” Updates to the Specifications are issued sequentially in a series of “Releases.” The technologies and methods set forth in each Release may build upon or add to a prior Release. Once a Release is completed by 3GPP, it is adopted and promulgated as a standard by 3GPP’s regional organizational partners, including ETSI.

27. The 3GPP organizational structure includes four Technical Specification Groups (“TSGs”) tasked to create Specifications for accepted work items. Each TSG consists of

one or more Working Groups that perform the technical work of evaluating proposed work items and developing the draft Specification. The several Working Groups of a TSG meet in Plenary sessions to determine the content of each Specification.

28. Working Groups may meet separately or in conjunction with the TSG Plenary meetings. The TSG primarily responsible for development of standards pertaining to mobile device positioning is the Radio Access Network (“RAN”) TSG. The RAN TSG has five Working Groups, RAN1 through RAN5.

29. Each TSG has a Chairman and generally three Vice Chairmen, and each Working Group has a Chairman and generally two Vice Chairmen. The position of Chairman for each Working Group and each TSG is extraordinarily powerful in determining what technologies will be included in the Specification, and the order in and speed at which each element of the Specification must be drafted, reviewed, and completed. As a result, the Chairman can exert significant power over which technologies become part of the standard and, by virtue of their inclusion, have an opportunity to compete and succeed in the marketplace.

30. Chairman positions are almost exclusively filled by representatives from major multinational telecommunications equipment manufacturers, such as and with great frequency Ericsson, Qualcomm, and Alcatel-Lucent. Those companies act as suppliers to or purchasers from virtually every participating company. Thus, the inherent power of the position of Chairman within the SSO bureaucracies is multiplied by the economic clout these companies wield over the other 3GPP members.

31. 3GPP and ETSI have adopted due process policies, procedures, and rules with respect to the development of the 3GPP standards so as to ensure fairness in the process

and compliance with antitrust and other laws (the “SSO Rules”). The SSO Rules include the following requirements:

- a. Technologies provided for in existing standards should be provided for in future standards, particularly where the technologies already have been deployed and are clearly applicable to the future work. *See* 3GPP Scope and Objectives for Third Generation Partnership Project Agreement at 2.3 (Aug. 31, 2007).
- b. Technical work should proceed in a transparent manner according to specific rules and procedures. ETSI Guidelines for Antitrust Compliance, C.2.1-C.2.2.
- c. Chairmen are responsible to conduct meetings in accordance with policies and procedures; to maintain strict impartiality and act in the interests of the organization and its members; and not to conduct these procedures so as to bias or favor the business interests of a company they represent. *See*, ETSI Technical Working Procedures, 1.3.3; ETSI Guidelines for Antitrust Compliance, D.1.2 and D.1.4; 3GPP Working Procedures, Art. 23.
- d. Technical contributions on which decisions will be based must be distributed to the Working Group members well in advance of meetings. *See* 3GPP Working Procedures, Art. 25.
- e. The 3GPP specifications must provide technology options to satisfy regulatory requirements of one or more nations or regions, without debate over the inclusion or rejection of such options. *See* 3GPP Working Procedures, Art. 3.

32. At relevant times, representatives of Ericsson, Qualcomm, and Alcatel-Lucent held positions of Chairman (and Vice Chairman) of the RAN TSG and Working Groups that made decisions concerning the standardization of the positioning technologies at issue in this case. As described below, the representatives abused the authority of these positions to substantially influence and dictate the SSO's decisions, and violated the SSO Rules, so as to collectively and improperly advance their companies' shared business interests by accelerating standardization of the technologies from which they financially benefited, and by successfully impeding standardization of the UTDOA positioning technology for LTE networks generally, and specifically in standalone LMUs, which they viewed as a competitive threat.

IV. RAN Equipment and Early Positioning Standards

33. RAN equipment, which is situated on cellular telephone towers, connects the mobile device handset to the mobile phone network.

34. The largest RAN vendors are Ericsson and Alcatel-Lucent. At present, they have no close competition for sales of RAN equipment in the United States.

35. RAN equipment is manufactured in accordance with standards that are intended to enable handset and network equipment from different vendors to work correctly together (*i.e.*, to "interoperate") with the RAN equipment.

36. In the late 1990s, a European-based standard for a second generation ("2G") mobile telecommunications technology, known as Global System for Mobile Communications ("GSM"), was proliferating throughout Europe and was beginning to be adopted by several major U.S. carriers. The initial GSM standards were developed by ETSI. Later standards for GSM were developed by 3GPP.

37. The initial releases of the GSM standard in 1998-99 included several positioning technologies, so as to enable U.S. carriers to meet FCC requirements. Among these technologies was the “Uplink Time of Arrival” (“UL-TOA”) method that shares key similarities with UTDOA.

38. Positioning for GSM at that time was dominated by a few large RAN equipment vendors, including Ericsson. These vendors favored E-OTD positioning technology for several reasons. First, upon information and belief, those companies held patents that were essential to the E-OTD technology, for which they could collect substantial royalties if E-OTD were included in the standards. Second, because Ericsson and other RAN equipment vendors incorporated positioning technologies within their RAN equipment, they could eliminate competition from third party vendors and thus dominate the positioning market and command higher prices for their equipment.

39. Because carriers did not purchase products using the UL-TOA method, the UL-TOA method was removed entirely from the 2000-2001 Releases of the ETSI GSM standard.

40. In 2001-2002, the E-OTD technology offered by Ericsson and other RAN vendors, and sold to major U.S. carriers, proved to be a failure that could not meet FCC regulatory requirements. As a result, major U.S. carriers that had heavily invested in GSM RAN equipment needed to find a technology alternative that could satisfy their E-911 obligations, and potentially faced millions of dollars in fines from the FCC for failing to meet the deadlines to implement E-911 mobile phone location.

V. TruePosition's Technology and Business

41. Founded in 1994 as "Associated Radio Location Tracking, Inc.," TruePosition first began developing cellular phone location products for analog mobile phones ("AMPS") and a "2G" digital phone technology used in the United States known as "TDMA." From its earliest days to the present, TruePosition has been a highly innovative company that devotes substantial resources annually to research and development for positioning technology. TruePosition began obtaining patents for its positioning technology inventions in 1994, and has continued to innovate and to obtain patents for new and enhanced location technologies. In 2001, TruePosition signed its first sales contracts to deploy positioning products in the United States. By 2002, TruePosition had developed UTDOA-based products that potentially could interface with GSM networks.

42. TruePosition does not manufacture RAN equipment. TruePosition sells high accuracy positioning and networking technology as a standalone LMU. These standalone LMUs are collocated with, and must interoperate with, the RAN equipment at a cell site.

43. The ability of an LMU to interoperate with multiple vendors' RAN equipment therefore is crucial to the ability of TruePosition (and other LMU vendors) to compete in the markets for positioning equipment. For that reason, beginning in the late 1990's, TruePosition began participating actively in organizations that set interoperability standards for mobile telecommunications, including ETSI and 3GPP.

44. TruePosition markets a "universal" LMU. The TruePosition universal LMU can be used to determine locations of mobile phones on networks for GSM and the third generation mobile phone standard known as "UMTS." These universal LMUs also could

be adapted through software modifications to determine cellular device locations on LTE networks. By purchasing the universal LMU, TruePosition's customers can maximize their investments in positioning hardware by using the same LMU hardware for current and future networking technologies. The use of standalone universal LMUs also makes it possible for carriers to upgrade their positioning technologies more quickly and inexpensively than through the modification of positioning technology embedded in RAN equipment, and without any impact on handsets.

45. TruePosition also offers products with supplemental location technologies, including A-GPS and other technologies in combination with UTDOA.

46. By preventing the connection of a standalone LMU to the wireless network, the Defendants not only eliminate competition in the market for positioning technology, but also foreclose the possibility of competition in the market for other ancillary network services that could be delivered by a standalone component that interoperates with RAN equipment.

VI. TruePosition Displaces the Failed E-OTD Technology, and Gets UTDOA into the Standards for GSM and UMTS Networks.

47. The failure of E-OTD created immediate demand by U.S. carriers to satisfy FCC requirements using TruePosition's standalone UTDOA solution. However, no ETSI standard specified the method for interoperability with UL-TOA or UTDOA technology. (Had UL-TOA remained in the GSM standard, TruePosition could have used that standard to make UTDOA interoperable with the RAN equipment.)

48. In the absence of a standard, TruePosition created a "work-around" solution so that its LMUs could obtain from the GSM RAN equipment two necessary pieces of

information: the precise time when the E-911 call was placed, and the radio channel information used by the handset to place that call. Ericsson opposed TruePosition's efforts.

49. This "work-around" was successful, but costly for the carriers. Therefore, the carriers requested their RAN vendors to join with TruePosition in a "UTDOA System Study Group" to create a standard interface for TruePosition's LMUs to interoperate with the RAN equipment. Within approximately one year, the group created the standard and brought it to ETSI. By 2004, UTDOA was included in the ETSI standard for GSM, including standalone LMUs.

50. Similarly, in 2004 when a major U.S. carrier wanted the ability to use TruePosition LMUs with UMTS, another study group was formed. By 2005, UTDOA was incorporated in the 3GPP standard for UMTS, including standalone LMUs.

51. As a result of these efforts, UTDOA in a standalone LMU configuration currently is supported in the 3GPP GSM and UMTS standards, and TruePosition and other companies have successfully marketed UTDOA-based standalone products in the United States for public safety E-911 uses, and in other countries of the world for security and law enforcement uses. In the United States, two major carriers (AT&T Wireless and T-Mobile) have implemented TruePosition LMUs at approximately 90,000 cell sites. These LMUs locate more than 55 million E-911 callers each year, helping police, fire, and rescue teams to effectively combat crime and save many thousands of lives.

52. For the reasons set forth in this Complaint, through their continuing conspiracy the defendants have unlawfully excluded UTDOA and standalone LMU implementations from any 3GPP Release for LTE systems. This conspiracy has foreclosed competition in

the relevant positioning and RAN equipment markets and injured TruePosition by preventing it from marketing its innovative standalone LMU products.

DEFENDANTS' ANTICOMPETITIVE CONDUCT

A. Introduction and Summary

53. The telecommunications standards set by 3GPP ensure compatibility of advanced mobile telephone and network equipment that enables global telecommunication.

Inclusion of a particular technology in the 3GPP standard opens the door to commercial success. Conversely, exclusion from the 3GPP standard renders the technology useless and virtually unmarketable.

54. As the U.S. Supreme Court observes, standard-setting organizations are rife with opportunities for anticompetitive conduct. *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492, 500-501 (1988); *Am. Soc'y Of Mech. Eng'rs v. Hydrolevel*, 456 U.S. 556, 571 (1982). Participants in SSOs, and the organizations themselves, have been held liable under U.S. antitrust laws where standard-setting processes have facilitated anticompetitive conduct by powerful participants against smaller and more innovative participating companies.

55. Given the proven effectiveness of UTDOA, its ability to meet regulatory standards, and its marketplace success, under 3GPP policies the UTDOA method in standalone LMUs should have been enabled in the first 3GPP standard that included positioning for LTE, *i.e.*, Release 9. But Ericsson, Qualcomm, and Alcatel-Lucent acting in concert undertook to delay and prevent standardization of UTDOA, and to prevent standardization of UTDOA in standalone LMUs. They succeeded through their repeated, deliberate, and coordinated violations of the SSO Rules, including rules requiring fair,

open, and impartial conduct by representatives of companies that act as Chairmen or Vice Chairmen of 3GPP Working Groups and TSGs.

56. Defendants Ericsson, Qualcomm, and Alcatel-Lucent acted in furtherance of this combination and conspiracy, as described in greater detail in this Complaint, including:

- a. Abuse of authority as Chairmen of the RAN TSG and RAN Working Groups in order to promote the progress of or specific implementation of positioning technologies that only benefit them, and to preclude fair consideration of competing technologies;
- b. Discriminatory setting of test parameters for simulating real-world performance of UTDOA, far in excess of parameters set for their favored technologies;
- c. Deliberate shuttling of UTDOA evaluations into Working Groups they control, and submitting deliberately skewed simulation results, solely for the purpose of delaying or quashing inclusion of competitive technologies in the standards;
- d. A pattern of dilatory submissions to the RAN TSG and RAN Working Groups, in violation of SSO Rules, that deny TruePosition and other Working Group and TSG members a full and fair opportunity to consider, respond, or propose alternatives; and a history as Chairmen of accepting such late submissions and making these late submissions the focus of the meeting; and,
- e. Improper collaboration with Plenary, TSG, and Working Group Chairs to assure adoption of proposals and processes favoring their self-interested positions, over the objections of their competitors and others.

57. Ericsson, Qualcomm, and Alcatel-Lucent mounted these unlawful exclusionary efforts in furtherance of their common scheme to delay and exclude UTDOA technology in standalone LMUs under the authority of 3GPP and ETSI, and abused that authority knowingly and with the purpose and intent to stifle competition from third party vendors, to quash innovative technologies in which Ericsson, Qualcomm, and Alcatel-Lucent do not have dominant patents, and to seize unfair competitive advantages in the United States and internationally for technologies in which they hold substantial patent portfolios and commercial interests.

58. 3GPP and ETSI each have responsibility to monitor the conduct of the 3GPP standardization efforts so as to enforce the SSO Rules for the benefit of their member companies, and to ensure that Releases are the product of fairness and due process. In particular, impartiality of the 3GPP RAN TSG and RAN Working Group Chairmen and Vice Chairmen is crucial to ensuring the fairness of the 3GPP standards and specifically identified by SSO Rules as required to maintain compliance with antitrust laws.

59. The requirement of impartiality within 3GPP has been, and remains, vitally important to smaller competitors like TruePosition. Unless 3GPP standards enable the necessary interoperability between standalone LMUs and RAN equipment, companies that produce standalone LMUs cannot compete against large RAN equipment vendors like Ericsson and Alcatel-Lucent in the positioning markets. Thus, impartiality of the 3GPP process ensures that smaller companies that produce standalone positioning implementations have a fair opportunity to compete and innovate, and that RAN vendors and handset manufacturers do not misuse the 3GPP standards process to attain exclusive control over the markets for highly accurate positioning equipment.

60. In this case, 3GPP and ETSI were both aware of and ignored the repeated blatant violations of the SSO Rules by Ericsson, Qualcomm, and Alcatel-Lucent, and failed in and surrendered their oversight and other responsibilities to conduct fair and due process standard-setting.

B. The First Overt Act of the Conspiracy: The Initial Improper Exclusion of UTDOA from Release 9

61. UTDOA has been included in 3GPP standards for GSM and UMTS systems beginning with Release 6 in 2005, and has been successfully deployed in standalone LMUs in the United States and in other countries of the world.

62. UTDOA technology is equally applicable to LTE systems. There is no technological reason why UTDOA in a standalone LMU configuration cannot interoperate with RAN equipment for an LTE network. However, the “work-around” that enabled UTDOA standalone implementations for GSM before standardization is not possible for LTE network equipment. Thus, 3GPP standardization for UTDOA is necessary for standalone LMUs on an LTE network.

63. Under 3GPP procedures and practices, it should have been a foregone conclusion that UTDOA in standalone implementations also would be included in 3GPP Release 9, which was the first release intended for actual deployment of LTE systems.

64. The sole reason that UTDOA standardization did not occur is because defendants Ericsson, Qualcomm, and Alcatel-Lucent knowingly and deliberately conspired to exclude UTDOA from the 3GPP LTE standards.

65. At the December 2008 RAN Plenary #42 in Athens, Greece, the Plenary group met to determine features to be included and prioritized for Release 9. On the first day of

the meeting—several days after the deadline for making technical submissions—Qualcomm submitted the first “work item” proposing to include positioning technologies in the LTE standard. Ericsson and Alcatel-Lucent co-sponsored the submission with Qualcomm. The submission included a required “Justification” for the work item, explaining how positioning technologies, including UTDOA, “have historically been useful and even essential to act as a backup to A-GPS in regions where emergency calls are subject to strong regulation.” The submission emphasized that regions other than the United States were adopting regulatory requirements for positioning, and so the objective should be to define explicit positioning support for LTE that was as good, and potentially better, than positioning already provided for GSM and other wireless technologies.

66. Although the submission acknowledged that UTDOA technology is capable of meeting those regulatory requirements, of all the technologies listed in the “Justification” section only UTDOA was omitted from the proposed future work. The exclusion of UTDOA from the proposal was deliberately intended by Ericsson, Qualcomm, and Alcatel-Lucent to exclude UTDOA from the LTE standard, and instead to advantage technologies in which those companies held substantial patent portfolios and business interests. This exclusion was all the more egregious and anticompetitive in that UTDOA is commercially successful, widely deployed, and demonstrably meets FCC positioning requirements. By contrast, the OTDOA technology proposed in the submission was not only an unproven technology with no extant commercial implementations—it was derived from the failed E-OTD technology that was replaced in the United States with TruePosition’s UTDOA-based LMUs.

67. As a result of the late submission by Qualcomm, Ericsson, and Alcatel-Lucent, TruePosition and others had no opportunity to consider or review or respond to the proposal. However, the Chair of the RAN Plenary—an employee of Alcatel-Lucent—already knew of the submission and its contents before its distribution to the Working Group as a whole. Acting in concert with Qualcomm and Ericsson, the Chair from Alcatel-Lucent made the submission the sole focus of further discussion of positioning technologies at that meeting. Giving serious consideration to and actively promoting a tardy submission violated the SSO Rules, which require that submissions be distributed to all members of a group sufficiently before a meeting so as to permit adequate time for fair analysis, review, and consideration.

68. TruePosition attempted at that meeting to include UTDOA in the work item for Release 9, and asked for a deferral of the discussion of defendants' submission due to the non-compliance with the submission deadline. The Chair from Alcatel-Lucent rebuffed TruePosition's requests. The reasons given for denying TruePosition fair consideration for inclusion in Release 9 were baseless, sham, and pretextual, inasmuch as OTDOA was unproven, more complex, and would require far more extensive modifications to the LTE standards than would UTDOA.

*C. Ericsson's Initial Abuse of its RAN1 Chair Position to Delay and Thwart
UTDOA Standardization*

69. At the March 2009 RAN Plenary #43 in Biarritz, France, TruePosition submitted a proposal to add UTDOA to that existing work item on positioning. Ownership of that existing work item had been assigned to the RAN2 Working Group. At the insistence of Ericsson's representative, however, evaluation of UTDOA was assigned to RAN1—even

though UTDOA affects *no* RAN1 specifications. The reason the Ericsson representative fought to hand the fate of UTDOA to RAN1 was transparent: that same Ericsson employee held the Chairmanship of RAN1. In furtherance of the conspiracy, the Ericsson employee intended to, and did, abuse his authority as Chairman to delay and potentially quash any progress for UTDOA. Ericsson through its representative's position as Chairman of RAN1 would thereafter repeatedly delay standardization of UTDOA and instead advance only the OTDOA technology that would benefit the manufacturing defendants' business interests.

70. The Ericsson RAN1 Chair orchestrated the defeat of the proposal to add UTDOA to the existing work item on positioning technology. As a result, UTDOA was pushed into a separate new work item, which would be easier to derail, while work on OTDOA was accelerated.

D. Ericsson's RAN1 Chairman Imposes Double Standards against UTDOA.

71. The Ericsson RAN1 Chairman imposed two rigorous restrictions on the UTDOA work item that were not imposed upon OTDOA, by:

- a. Requiring TruePosition to prove that UTDOA would deliver added benefits over other technologies, in order to be considered for inclusion in the LTE standard. To TruePosition's knowledge, no other positioning technology had been required to demonstrate benefits superior to other technologies in order to be included in the standards. In accordance with 3GPP practice, alternative methods often are standardized so as to afford carriers an implementation choice, particularly for "optional" features like positioning (*i.e.*, features that were required for some, but not all, networks). As previously noted, the GSM and UMTS standards provided

for more than one alternative positioning technology. In RAN1, however, the Chairman from Ericsson deliberately discriminated against the deployed and successful UTDOA technology, in favor of the defendants' preferred OTDOA technology which had never proved viable.

- b. Delaying any work on the UTDOA work item until after June 2009. Ericsson imposed this restriction, which was supported by Alcatel-Lucent, to ensure that defendants could complete standardization of the unproven OTDOA technology before any company could be given the opportunity to show that UTDOA was, and remains, a superior technology.

These added restrictions, unfairly imposed by the RAN1 Chairman from Ericsson only on UTDOA, were imposed in furtherance of the defendants' conspiracy first implemented in Athens to delay and ultimately preclude 3GPP from including UTDOA in the LTE standard.

72. After this initial three-month delay imposed by Ericsson as RAN1 Chair, Ericsson continued to promote the defendants' self-interests in OTDOA by erecting additional unfair barriers against consideration of UTDOA. To begin the evaluation of UTDOA at the June-July 2009 RAN1 Working Group meeting, in Los Angeles, California, TruePosition timely submitted a list of simulation assumptions for UTDOA. These assumptions represented a reasonable range of field conditions. Other group members provided suggestions to revise the proposed conditions. TruePosition conducted extensive and burdensome simulations that demonstrated the ability of UTDOA to meet that set of requirements under those revised conditions. Over the next meetings, TruePosition refined its assumptions in accordance with the comments from each

previous meeting and brought in new simulation results. But each time TruePosition brought to the RAN1 Group new simulation results proving the accuracy of UTDOA under the requested assumptions, the Chairman from Ericsson insisted that the last requested assumptions were insufficient, and needed to be more stringent.

73. From June through September 2009, in spite of consistently positive simulation results for UTDOA, the RAN1 Chair from Ericsson insisted that UTDOA could not progress beyond an “evaluation” stage until other companies submitted simulations that verified TruePosition’s results.

74. No other positioning technology was subjected to these sham restrictions. Any reasons given for foisting these additional restrictions on UTDOA were pretextual.

E. Ericsson Abuses its RAN1 Chairmanship to Favor OTDOA.

75. Despite delaying standardization of UTDOA, Ericsson, Qualcomm, and Alcatel-Lucent still were unable to meet their own proposed completion date of June 2009 to finish the evaluation of OTDOA.

76. Technical tests simulating how OTDOA would perform showed substantial inconsistent results. Several companies were unwilling to declare final approval of OTDOA due to unresolved technical issues. Nevertheless, the Ericsson Chairman rammed through the RAN1 Working Group the changes to support OTDOA. Ericsson thereby sealed preferential treatment of OTDOA to secure its inclusion in Release 9. Notably, and not coincidentally, Ericsson forced these premature decisions because it was the last RAN1 Working Group meeting in which Ericsson’s representative presided as Chairman.

F. Ericsson, Qualcomm, and Alcatel-Lucent, in Concert, Continue to Manipulate Working Groups to Hold Back UTDOA.

77. In the October 2009 RAN1 Working Group meeting #58-bis in Miyazaki, Japan, TruePosition still was the only company to submit UTDOA simulations for this meeting. However, just 12 hours before the UTDOA session was to begin, and some five days past the deadline for any submissions, Ericsson submitted to the RAN1 group a report regarding UTDOA on subjects outside the purview of RAN1. Ericsson used the report as an excuse to further delay RAN1 consideration of UTDOA by insisting that the RAN2 and RAN3 Working Groups must first be consulted before any decisions on UTDOA could be reached in RAN1.

78. The hypocrisy and sham nature of Ericsson's argument revealed its true purpose to delay progress for UTDOA. When Ericsson's representative held the RAN1 Chair, he had insisted that RAN1 must evaluate UTDOA. Yet, in its first contribution against UTDOA after its chairman position expired, Ericsson insisted on the need for prior input from the RAN2 and RAN3 Working Groups. The improper motive behind the request was transparent: the RAN3 Group was chaired by a representative of Qualcomm, and the Vice Chairman was from Ericsson. Through their control of the RAN3 Group, defendants would again be positioned to impede consideration of UTDOA and thereby keep UTDOA out of Release 9 and LTE standards.

79. Although Ericsson's late submission violated 3GPP rules, and despite its clear improper purpose, the new Chairman of the RAN1 Working Group accepted Ericsson's submission. Unsurprisingly, that new Chairman was an employee of Alcatel-Lucent.

80. Throughout the ensuing series of RAN1 meetings discussing simulations for UTDOA, defendants continued their baseless discrimination against UTDOA, so as to push UTDOA standardization to a later release.

- a. Alcatel-Lucent, with Ericsson's support, denied TruePosition sufficient time to discuss UTDOA so as to make progress in RAN1 meetings.
- b. TruePosition required minor changes from RAN2 and RAN3 to standardize UTDOA for LTE. Ericsson, having forced the UTDOA evaluation into RAN1, repeatedly insisted in RAN1 that TruePosition could not assume that the RAN2 or RAN3 specifications would support UTDOA when running its simulations. By contrast, RAN1 simulations for OTDOA had expressly been permitted to presume that all necessary support for OTDOA would be provided in the RAN2 and RAN3 specifications.
- c. Over a series of meetings, the RAN1 Chair from Alcatel-Lucent allowed Ericsson to consistently ratchet up performance requirements for UTDOA, to an unreasonably high level. Ericsson insisted that UTDOA simulations should have to successfully perform locations under conditions more severe than those necessary to meet FCC regulations—conditions so extreme that not even voice communications could survive. Notably, RAN1 did not impose such atypical simulation conditions on other LTE positioning technologies, including OTDOA.
- d. Ericsson repeatedly attempted to hamstring UTDOA with strict performance assumptions. Alcatel-Lucent allowed Ericsson to use this

delaying tactic over multiple months of meetings, although TruePosition's evidence and arguments demonstrated that TruePosition's proposed targets and assumptions directly paralleled those previously used by Ericsson for an analogous technology.

- e. At the November 2009 meeting #59 in Jeju, South Korea, which was supposed to be the final RAN1 Working Group session before the cut-off for including technologies in Release 9, Ericsson again attempted to confuse and terminate the UTDOA evaluation process so as to thwart timely standardization. Ericsson submitted lengthy simulations skewed against UTDOA, using sham assumptions of extreme conditions far more severe than those conditions under which Ericsson provided simulations for OTDOA. Ericsson submitted these results four days *after* the submission deadline, knowing that RAN1 could not digest or discuss such a large set of data without adequate advance notice or review, and that TruePosition would not have sufficient time to prepare a rebuttal. Ericsson intended that its late submission would cause RAN1 to defer the UTDOA work item to future meetings and, thus, push UTDOA out of Release 9. Moreover, Ericsson intended its attack on UTDOA as a sham, because its simulations relied on interference levels far exceeding the levels that it promoted as "reasonable" for technology features in which Ericsson had a strong economic interest.
- f. Also at the Jeju meeting, Qualcomm circulated a short submission of simulation results for UTDOA that were facially fundamentally flawed.

When TruePosition exposed and objected to the inaccuracies of Qualcomm's submission, Qualcomm was unable to answer any of TruePosition's objections. The RAN1 Chair from Alcatel-Lucent facilitated all of these efforts. He accepted all of Ericsson's late submissions; credited Ericsson's baseless attacks on UTDOA; and actively supported Ericsson's and Qualcomm's efforts to oppose and delay standardization for UTDOA.

G. Defendants Succeed in Keeping UTDOA Out of Release 9.

81. The Release 9 cut-off was extended to the March 2010 Plenary meeting #47 in Vienna, Austria for various work items, including the Qualcomm positioning work item and the UTDOA work item. At that TSG meeting, Ericsson opposed further progress for UTDOA on the basis that UTDOA's simulation results were "inconsistent." The only "inconsistent" results were the untimely, biased, and flawed submissions by Ericsson and Qualcomm, skewed by the irrationally-inflated simulation parameters permitted by the Alcatel-Lucent RAN1 Chair. This controversy had to be presented for resolution by the RAN Plenary Chair during the Vienna Plenary. TruePosition, with the support of others including a major U.S. carrier, objected that Ericsson's proposed interference levels were patently unreasonable. When challenged, Ericsson could neither prove the need for such high interference levels nor provide any valid reason why UTDOA needed to meet more stringent interference requirements than other comparable work items in LTE.

82. At the March 2010 Plenary, two major U.S. carriers supported the advancement of UTDOA past the evaluation phase and into specification work. Ericsson first opposed continuing with UTDOA standardization at all, then continued to assert the need for more